

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

RE: DECLARATION

An updated Declaration stating that all errors which have been corrected in the reissue application (up to the time of filing of the Declaration) arose with any deceptive intent will be provided in due course upon an indication that this reissue application is in condition for allowance.

ALLOWABLE SUBJECT MATTER

Claims 1-20 and 23-25 were not rejected on the merits, and it is understood that these claims are in condition for allowance.

THE PRIOR ART REJECTIONS

Claims 21, 22 and 26-29 were rejected under USC 103 as being obvious in view of the combination of USP 5,101,096 ("Ohyama et al") and JP 4-139898 ("Kato et al").

This rejection, however, is respectfully traversed with respect to amended claim 21 and claim 22 depending therefrom.

Claim 21 has been amended to recite the features of the present invention formerly recited in (now canceled) claim 27 whereby the binarizing means generates binarized data, by use of a predetermined threshold value, from an image signal corresponding to an image of the dot code read by the code

reading means, and whereby the reference dot is arranged for use by the binarizing means when the binarizing means binarizes the image signal and modifies the predetermined threshold value so that an area of the reference dot in the image of the dot code read by the code reading means approaches a predetermined target value. In addition, claim 21 has been amended to clarify the feature of the present invention whereby the reference dot is at least part of a pattern code for use in determining positions for reading the data dots. And still further, claim 21 has been amended to make a few minor grammatical improvements and to correct a few minor antecedent basis problems.

A copy of twice amended claim 21 marked with underlining and bracketing against the original patented text is set forth hereinabove in accordance with the Examiner's reminder in the second paragraph on page 5 of the Office Action, as required by 37 CFR 1.173(g). In addition, a clean copy of twice amended claim 21 is attached hereto as Appendix I, and a copy of claim 21 as (first) amended in the Preliminary Amendment filed May 9, 2001 is attached hereto as Appendix II to show the changes being made therefrom.

As set forth in the STATEMENT under 37 CFR 1.173(c) being filed concurrently herewith, the amendments to claim 21 are supported by the disclosure in the specification at column 14, lines 49-66 and column 17, lines 22-60.

No new matter has been added, and it is respectfully requested that the amendments to claim 21 be approved and entered.

The information recording medium according to the present invention as recited in (twice) amended claim 21 comprises: data dots corresponding to information, and a reference dot for use in correcting the threshold value used in generating binarized data, wherein the reference dot is at least part of a pattern dot for use in determining the positions for reading the data dots.

By virtue of these claimed features, the information recording medium of amended claim 21 can achieve the following advantageous effects:

1. The reading device for reading the dot code can perform binarization for obtaining a dot having a desired size, without depending on the expansion/contraction of a dot, which is needed in accordance with the recorded state.

2. Even if a whisker-like noise is superimposed on dots, the reading device can perform effective binarization.

3. Since at least part of the pattern code for use in determining the position for reading the data dots doubles as the reference dot for use in correcting the threshold value used in generating the binarized data, the recording density of the code is improved, as compared with the case where the pattern code and the reference dot are recorded separately from each other.

4. Since the pattern code doubles as the reference dot, the reading device can also use a pattern code detected to read the data dots at the primary stage, in order to correct the threshold value for use in generating the binarized data, and so that binarization can be efficiently carried out at an early stage.

As recognized by the Examiner, Ohyama et al discloses a recording medium on which information of an image, voice or the like is recorded as an optically readable code, and a reproducing method and apparatus which subject an image of the code to binarization processing when the code is read.

As also recognized by the Examiner, however, Ohyama et al fails to disclose, teach or suggest the feature of the present invention as recited in amended claim 21 whereby the code includes a reference dot for use in correcting the threshold value which is used for generating the binarized data. (And in addition, it is also respectfully submitted that Ohyama et al obviously also does not disclose, teach or suggest the feature of the present invention as recited in amended claim 21 whereby the reference dot is at least part of a pattern code for use in determining the positions for reading the data dots.)

On page 4 of the Office Action, the Examiner asserts that Kato et al discloses modifying a predetermined binarization threshold value so that an area of an isolated reference dot in an image read by an optical reading means approaches a predetermined target value.

It is respectfully submitted, however, that Kato et al relating to an apparatus for automatically mounting electronic components on a board, whereas Ohyama et al (and the claimed present invention) relate to the reproduction of multimedia information recorded as an optically readable code on a recording

medium. Accordingly, it is respectfully submitted that the teachings of Ohyama et al and Kato et al are from entirely different fields and that there would have been no motivation for one of ordinary skill in the art of the claimed present invention to have combined the unrelated teachings of Kato et al with the teachings of Ohyama et al.

In any event, moreover, it is respectfully submitted that Kato et al does not at all disclose, teach or suggest the feature of the present invention as recited in amended claim 21 whereby the reference dot for use in correcting a threshold value used for generating binarized data is at least part of a pattern code for use in determining the position for reading data dots.

Accordingly, it is respectfully submitted that even if the teachings of Ohyama et al and Kato et al were combinable in the manner suggested by the Examiner, the above described structural features and advantageous effects of the present invention as recited in amended claim 21 would still not be achieved or rendered obvious.

Still further, it is noted that if Ohyama et al were modified to include the reference mark recognition and threshold adjustment taught in Kato et al, and the binarization means in Ohyama et al were used to modify the threshold value used for binarization in order to have some measured improvement in correctly recognizing the area of the reference mark and binarizing of the dot code image signal, such combination would

still give rise to the problem of how to modify the left and right elongated markers of Ohyama et al such that the reference mark of Kato et al could be applied to the left and right elongated markers of Ohyama et al. In other words, it is respectfully submitted that the teachings of Ohyama et al and Kato et al cannot be simply combined in the manner suggested by the Examiner without considering whether or not to replace the left and right elongated markers of Ohyama et al by, e.g., circular markers.

In short, it is respectfully submitted that neither Ohyama et al nor Kato et al discloses, teaches or suggests the feature of the present invention as recited in amended claim 21 whereby the reference dot used for correcting a threshold value used for generating binarized data is at least part of a pattern code for use in determining the position for reading data dots.

And it is therefore respectfully submitted that amended claim 21 and claim 22 depending therefrom patentably distinguish over the cited references, taken singly or in combination, under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of all the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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APPENDIX II

(Copy of Previous Amended Claim 1 Marked to Show Changes)

21. ^{Twice} (Amended) An information recording medium for use in an information reproducing system having code reading means for reading a [desired] dot code from an information recording medium on which multimedia information including at least any one of audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read; binarizing means for generating binarized data ^{by use of a predetermined threshold value,} from an image signal corresponding to ^{an image of} the dot code read by said code reading means; and information reproducing means for restoring ^{the} binarized data generated by said binarizing means to [original] ^{and for reproducing the} multimedia information [to reproduce] multimedia information, said information recording medium comprising:

data dots which correspond to [the] contents of the multimedia information and which can optically be read; and a reference dot arranged [to be [detected] binarized by] ^{binarizes the image signal and modifies} said binarizing means ^{predetermined} and serving as a reference when ^{for use by said binarizing means when} the threshold value [is modified to allow the] ^{so that an} area of the [detected] binarized dot to approach a predetermined target value.

22. (Amended) An information recording medium according to claim 21, wherein a plurality of the reference dots are recorded [in an image pickup region] on the information recording medium

^{reference dot in the image of the dot code read by said code reading means approaches}
said reference dot being at least part of a pattern-code for use in determining positions for reading the data dots